Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

GEOGRAPHICAL RECORD.

NORTH AMERICA.

THE DEVELOPMENT OF THE UNITED STATES.—*Ergänzungsheft* No. 142 to *Petermanns Mitteilungen* is entitled "Die Entwicklung der Vereinigten Staaten von Nordamerika." The writer, Mr. Richard Blum, has prepared numerous tables derived from our Census Reports, some of them extending back as far as the first census, to show the increase in our population in every State and Territory, the elements of which it is composed, the history of immigration, and the growth of our cities. The tables devoted to the chief agricultural crops are full of interest and of suggestive comparison, showing for each State and Territory the number of acres in each crop in the last four census years, the harvest in bushels or tons, the average productivity per acre, the average value per bushel or ton, and the total value. The statistics of live stock and the number and value of farms, farm buildings, and agricultural machinery are treated in the same exhaustive manner. The history of the development of our mining industry, general manufactures, commerce, and merchant marine as shown by statistical tables is admirably presented. The volume concludes with a sheet containing ten maps of the country, showing graphically the territorial growth of the United States, the steady western movement of the centre of population, and the product per acre and the price per bushel or ton of each of the cereal crops, potatoes and hay, in each of the States and Territories for the year 1900. No foreign publication has ever given so complete and intelligible a statement of our economic development and present condition. Each series of tables is prefaced by remarks of an explanatory nature and by deductions from the tables, to which attention is especially called. The work is important, not only as a convenient and authoritative reference book relating to the United States, but also as a contribution to anthropogeography.

THE SCHOOL OF GEOGRAPHY IN THE SUMMER SESSION OF CORNELL UNIVERSITY.—An announcement of this interesting experiment was given in the April number of this BULLETIN. Considering the alarm produced by the typhoid epidemic of last winter, the attendance was large, and the health of the school was as perfect as in any previous year. Teachers from seventeen States were registered in the School of Geography, representing grade, normal, and high schools and superintendents. Professor R. S. Tarr, the Director of the school, gave courses in Physiography and the Physical Geography of Europe. Professor Albert P. Brigham gave courses upon Dynamic Geology and the Geography of the United States. Commercial Geography was treated by Principal Philip Emerson, of Lynn. Courses dealing more directly with method were given by Dr. C. A. McMurry, upon Type Studies and Home Geography, and by Supervisor R. H. Whitbeck, of Trenton, upon Class Room Problems and Laboratory Methods in the Grades. Laboratory work in Geology was directed by Mr. Geo. C. Matson, and in Physical Geography by Assistant Principal Frank Carney, of Ithaca. The local region was very thoroughly covered by field excursions in Physiography, Geology, Commercial and Home Geography, and longer excursions were made to Watkins Glen, Wilkesbarre, Union Springs, and Lake Ontario. A feature of the school was the round-table conference, held on one evening of each week, for the informal discussions of school problems in geography.

It is expected that this very comprehensive group of courses, with some additions that experience has suggested, will be again offered in 1904, with the same faculty. A. P. B.

AGE OF THE LANSING SKELETON.—Professor N. H. Winchell re-enters the discussion of the age of the Lansing skeleton with a paper published in the *Bulletin* of the Geological Society of America (Vol. 14, pp. 133–152). It will be remembered that these human remains were discovered at Lansing, Kansas, in the loess deposits of the Missouri Valley by a farmer named Concannon, who was digging a root cellar. The skeleton was found beneath twenty feet of loess. Professor Winchell contends that the loess found in the Mississippi Valley is of aqueous origin; that the main body of it is contemporary with an ice epoch now known as the Iowan stage of glaciation, and that the skeleton proves the existence of man in the Iowan epoch, or in the fourth of the five glacial stages recognized in North America. It is assumed by glacialists that the fifth or Wisconsin glacial stage occurred at least 8,000 years ago. Professor Winchell says that the bones of the Lansing skeleton were buried by the volumes of mud and muddy water with which the Missouri Valley was filled, and that these sediments were augmented by materials from the Kansas drift.

BUILDING STONE AND COAL IN WASHINGTON.—Vol. II of the Annual *Report* of the Geological Survey of Washington, 1902, is devoted to two papers, one on the building and ornamental stones of the State and the other on its coal deposits. The granites are all light gray in colour, and are very good building material. The sandstones compare favourably with many of the best quarried elsewhere. Few of the marble deposits have been developed, and most of the promising marble properties, ordinary grades or decorative varieties, are in Stevens County, in the northeast corner of the State. The coal fields are chiefly in the west, extending in a broken line from the Canadian boundary to the Columbia River. Lying on the border, between the foothills of the Cascades and the Puget Sound basin, the fields are within easy reach of tide-water, and have excellent facilities for transportation. The output of the twenty-three coal-mining companies in 1902 was 2,690,789 short tons of coal and 40,569 tons of coke.

BOSTON DESCRIBED AND PICTURED.—The *Journal of Geography* signalized the meeting of the National Educational Association at Boston, in July last, by devoting its June number chiefly to that city. It depicted in an admirable series of articles the approaches to Boston, its geographical features and development, the influences which make it a great industrial centre, and other characteristics of the city. It is rarely that a great metropolis is so fully and adequately described from a purely geographical point of view. As a geographic study of the second greatest seaport of the United States these papers are to be heartily commended.

EXPLORATION IN HUDSON BAY.—The Canadian Government steamer *Neptune* sailed on Aug. 22 from Halifax for Hudson Bay and Arctic waters. A year and a half will be spent in botanical, geological, and natural history investigations. It is said that the party will take formal possession for Great Britain of the Arctic islands north of this continent and the shores of Baffin's Bay.

STORMS OF THE GREAT LAKES.—A recent publication of the United States Weather Bureau (Bulletin K, 4to, pp. 9, Charts 952), by Professor E. B. Garriott, deals with the storms of the Great Lakes, and is designed to furnish the observers of the Weather Bureau, and ship captains on the Lakes, such information as will help them to recognize, on the daily weather maps, the general weather conditions attending the approach of storms. There are in all 952 small weather maps, illustrating the more important Lake storms which have occurred during the twenty-five year period 1876–1900. Each storm is illustrated by four charts, covering 32 to 48 hours of its history. Usually, also, at least two of the charts present the general meteorological conditions over the United States and Canada eight to twenty-four hours before the storm centre reached the Lake region. November, with forty-five severe storms, heads the list for greatest monthly storm frequency. In June and August severe storms occur only about once in three years, and in July about once in four years. Thus it is clear that, as the navigation season draws to its close, the storms increase both in number and in severity. The straight gales of summer are an almost negligible quantity as far as forecasting is concerned. The most destructive Lake storms come from the southwest, and usually appear first in the region of the southeastern slope of the Rocky Mountains, the Rio Grande Valley, the coasts of northeastern Mexico, and the western part of the Gulf of Mexico. The season of these southwest storms is from October to May. The storms from the lower Missouri Valley, or "Middle West," are next in order of severity. They appear first on the middle-eastern slope of the Rocky Mountains, or swing southeast from the northwestern States, or the north Pacific coast, and then recurve to the east or northeast. The storms from the middle west are common at all seasons, but the most severe ones occur chiefly in the colder months. "Northwest Storms" include the greater number of the Lake storms. This class takes in all disturbances that move from the northeastern Rocky Mountain slope, and the British Northwest Territory almost directly toward the upper Lakes. During the colder months many of them advance from the north Pacific Ocean. Storms of this type are seldom destructive over the Lake region. The Lakes also suffer occasionally from storms of tropical origin, which have come from the Gulf of Mexico or the South Atlantic coast of the United States. A useful little "wind-barometer table," on page 9 of the Bulletin, shows the kinds of wind and weather indicated in the Lake region, with different heights and changes of the barometer. R. DeC. W.

NATICK DICTIONARY.—The Bureau of American Ethnology has issued as *Bulletin 25* a dictionary of Natick language (XXVIII and 347 pp.). The dictionary is in Natick-English and English-Natick. The language was that of the Natick Indians of Massachusetts, a tribe of Algonquian stock. It was into this language that John Eliot made his famous translation of the Bible (1661–63), and as only fourteen complete copies of his work are now known to exist, they are valued at very high prices. This dictionary is the result of the scientific study of Eliot's Indian Bible by Dr. James Hammond Trumbull, who gave the closing years of his life to the preparation of the vocabularies which are here printed from his manuscript. Dr. Edward Everett Hale, who contributes an introduction to the dictionary, says that the descendants of the Algonquian tribes of Massachusetts have not retained a knowledge of their dialects, but the Passamaquoddy and Micmac Indians of Maine still use their dialect of Algonquian stock.

WEST INDIAN HURRICANES.—The August, September, and October issues of the *Pilot Chart of the North Atlantic Ocean*, issued by the United States Hydrographic Office, have frequently contained brief accounts of the class of cyclones known as West India Hurricanes, because these storms occur chiefly during our late summer and early autumn months. The *Pilot Chart* for September, 1903, contains an excellent, albeit necessarily somewhat brief, discussion of West India Hurricanes, prepared by James Page, of the Hydrographic Office (reprinted from Hydrographic Office Publication No. 86, Gulf of Mexico and Caribbean Sea, Vol. I, 5th Ed., 1901). This discussion, while intended primarily for seamen, is not technical, and will prove useful for other persons as well. The path usually followed by these hurricanes carries them from their place of origin, in the northern margin of the doldrums, in a direction between west and north to the northern limit of the trades, and then in a direction between north and east. This path takes most of these storms along, or near, the Atlantic coast of the United States. Occasionally, instead of following this regular track, a hurricane keeps to the westward, across the Gulf of Mexico, before recurving, as was the case with the Galveston storm of September, 1900. The months of maximum frequency of occurrence are September and October. Of 56 hurricanes recorded by the United States Hydrographic Office in the 11-year period, 1890–1900, 41 occurred in these months.

While within the tropics the area of low pressure and violent winds rarely exceeds 300 miles in diameter, in higher latitudes this may be considerably increased. In the old days the "8-Point Rule" was believed to apply to all parts of a tropical cyclone, but now every seaman knows that it is only within the comparatively small area covered by the central depression that the direction of the wind is nearly at right angles to the barometric gradient. Farther out, the wind blows more directly towards the centre, and, although observations on this point differ greatly in different parts of the same storm, and in different storms, six points (67° 30′) may be taken as about the value most commonly noted, although too much reliance should not be placed on the accuracy of this method of determining the bearing of the centre. The distance of the centre can best be determined by noting the height of the barometer and its rate of fall; the force of the wind; the movements of the clouds, and the rapidity with which the wind shifts. The matter of manœuvering, to keep a vessel away from the dangerous centre; or to get her into the "navigable semicircle"; or to make the best use of the winds on the outskirts of the storm to help her on her course, has been very carefully worked out, and the result of many years of study of hundreds of observations has given the following brief rules for handling vessels in tropical cyclones: In the left semicircle (with respect to the storm track) the wind shifts to the left; lie-to, if at all, on the port tack. In the right semicircle, the wind shifts to the right; lie-to, if at all, on the starboard tack.

R. DeC. W.

HEALTH ON THE ISTHMUS OF PANAMA.—Gen. Henry L. Abbot, U. S. A., discusses the important question of health on the Isthmus of Panama in a recent article on the *Climatology of the Isthmus of Panama* (Monthly Weather Review, XXXI, No. 3, 1903, 117–124). During the construction of the Panama Railroad no health statistics were made public, but they were undoubtedly appalling. At that time the question of acclimatization was not understood nearly as well as at present, and natives of the temperate regions were made to perform hard manual labour under the tropical sun. Now it is known that dependence for such work must be placed on West Indian negroes, because, although white men can supervise in the Tropics, they should not attempt more. During the period of canal construction, and especially during the time of the New Panama Canal Company, careful health records were kept, and the following table, which is a summary of one prepared by Dr. Lacroisade, for many years medical director of the Company hospital at Panama, gives a good idea of the health conditions during the last twenty years:

YEARS.	MEAN EFFECTIVE FORCE EMPLOYED.	MEAN ANNUAL PERCENTAGE OF DISEASE.			MEAN ANNUAL PERCENTAGE OF MORTALITY.		
		DISEASES OF EUROPE.	DISEASES DUE TO CLIMATE.	MEAN TOTAL PER YEAR.	DISEASES OF EUROPE.	DISEASES DUE TO CLIMATE.	MEAN TOTAL PER YEAR.
Old Company, 1881–1888.	10,854	18.83	42.75	62.58	3.05	3.92	5.97
Receiver, 1889–1894.	971	....	....	49.68	....	....	2.88
New Company, 1895–1901.	2,703	....	....	37.17	2.10	0.51	2.61

Dr. Lacroisade attributes the marked reduction in the death-rate to the better accommodations of the laborers, to better drainage, and especially to the fact that the excavations have reached a level below the poisonous emanations of decaying organic matter. He finds that for the last four years, with a personnel of 2,275, the percentage of disease has been 29.65, with a mortality of 2.35 per cent., which he believes do not exceed those on large works in any country. The employees concerned in these latter figures had been on the Isthmus some time, and were well acclimated. Dr. Lacroisade believes that yellow fever is in nowise necessarily endemic on the Isthmus. The completion of sanitary works, the cleaning of streets, and the filling in of many swamps in Colon have evidently been very effective in freeing that city of yellow fever, for since 1891–92 Colon has been free from any infectious disease, and escaped the yellow fever epidemics of 1897, 1899, and 1900. Dr. Lacroisade thinks that by furnishing a good supply of drinking water, constructing sewers, watering and cleaning streets, and establishing effective quarantine, Panama would also have fewer yellow fever epidemics, and a residence there would be less dangerous for unacclimated white men than it is at present.

R. DeC. W.

HANDBOOKS OF THE LATIN-AMERICAN REPUBLICS.—The handbooks relating to the various Latin-American states, which are being compiled by the International Bureau of the American Republics, contain a large amount of recent and valuable information. Their usefulness, however, would be much enhanced if the material used were more carefully sifted and classified. In the latest issue, "Argentine Republic," for example, it is impossible to find in the 375 pages a comprehensive, orderly account of any of the great industries. Some of them are mentioned only in statistical tables. It seems certain that more critical selection of material and more concise and logical treatment of topics would result in better, smaller, and more useful books.

GEOGRAPHIC TABLES AND FORMULAS.—The United States Geological Survey has just issued as *Bulletin No. 214* a compilation of geographic tables and formulas relating to the work of the topographic branch of the Survey. The collection in one volume of this material, which is used by topographers both in the field and the office, will be useful to many.

DEATH OF CIVIL ENGINEER MORISON.—Mr. George Shattuck Morison, the eminent civil engineer, died in New York on July 1, aged 60 years. One of his last public appearances was before the American Geographical Society in December, 1902, when he delivered an address on the Panama Canal before a large audience, including many distinguished members of Mr. Morison's profession. As a member of the Isthmian Canal Commission Mr. Morison had thoroughly studied the questions relating to the Panama Canal. His valuable paper on the subject was printed in the BULLETIN for February, 1903. Mr. Morison was born at New Bedford, Mass., was graduated from Harvard in 1863, and was especially known for the large number of bridges he had built, including fifteen across the Mississippi and Missouri rivers.

SOUTH AMERICA.

THE RIO NEGRO AND THE CASIQUIARE.—A correspondent asks for information as to the practicability of using the Rio Negro and the Casiquiare bifurcation which connects the Negro with the Orinoco as an outlet for the rubber product of the Amazon basin. Col. George Earl Church, one of the most authoritative writers in English on South America, may be quoted as to the navigability of the Rio Negro:

> The Negro is navigable for 450 miles above its mouth for 4 feet of water, in the dry season, but it has many sand banks and minor difficulties. In the wet season it overflows the country far and wide, sometimes to a breadth of 20 miles, for long distances; and for 400 miles up, as far as Santa Isabela, is a succession of lagoons, full of long islands and intricate channels, and the slope of the country is so gentle that the river has almost no current. But just before reaching the Uaupes* there is a long series of reefs over which the river violently flows in rapids, cataracts and whirlpools. (*Geog. Jour.*, Vol. 17, p. 367, 1901.)

The same writer says in a note on p. 365 of his article that a much shorter connection exists to the west of the Casiquiare between the Orinoco and the Amazon basins by the Isthmus of Pimichin. It is reached from the Orinoco River by ascending the Atabapo and its Terni branch. The latter is somewhat obstructed, but could easily be cleared out and made navigable. The isthmus (that is, the portage between the headwaters of the Terni and the Rio Pimichin) is ten miles across and is much used for the transit of large canoes which are hauled over it and thence, by the little river Pimichin, reach the Rio Negro.

We have found no evidence that the Casiquiare is used for commerce, though its channel is wide and deep. On the Amazon side the difficulties in the rapids of the Rio Negro presumably would interfere with long-distance transportation through the Casiquiare; on the Orinoco side the whole region has not advanced beyond the stage of pioneer exploration; the Casiquiare itself was not even fairly well known till the Chaffanjon expedition of 1886–1887 made it a subject of special study. Speaking of the Orinoco, Major Stanley Paterson says in his article, "In the Valley of the Orinoco" (*Geog. Jour.*, Vol. 13, 1899, pp. 39–50), that Ciudad Bolivar is practically the western outpost of civilization in that direction and the farthest limit of regular steam traffic on the Orinoco. The prospects that the Casiquiare will be used as a commercial highway between the Amazon and Orinoco basins in the near future do not seem to be important.

---

* Also spelled Waupes.

TRIGONOMETRICAL SURVEY OF BRAZIL.—The Brazilian Government has decided to begin a survey of the country on modern scientific lines. Preparations were being made in June for the triangulation of the State of Rio Grande do Sul by a commission under Colonel F. de Abreu Lima, who intended to measure bases at Porto Alegre and Uruguayana and to connect the two cities by triangulation. This arc will cover about 6.25° of longitude in 30° south latitude.

CLIMATIC CHARTS OF ARGENTINA.—Dr. Josef Chavanne has recently issued an important publication on the temperature and rainfall of Argentina (Vol. I of the Publications of the German Academic Association of Buenos Ayres). The rainfall records are reduced to the period 1861–1900, and the temperature records to the period 1856–1900. The charts show the annual and seasonal temperature and precipitation, and the temperature ranges and anomalies. The country is divided, climatically, into five general provinces, three of which are subdivided into two sub-provinces each.

R. DEC. W.

PARAGUAY REVIEW.—This publication, issued every three months by the Government of Paraguay, is devoted chiefly to the economic aspects of the country and the information required by immigrants. With the beginning of its third year in March last, all the contents of the magazine are printed in English and German instead of English and French. The change is made on account of the growing demand for information about the Republic in the German language.

EUROPE.

THE BERLIN GEOGRAPHICAL SOCIETY.—The completion of the seventy-fifth year of the existence of this Society was celebrated on May 4 last. As the anniversary nearly coincided with the seventieth birthday of the distinguished German geographer Baron von Richthofen, the two celebrations were combined. Prof. Hellmann gave an address reviewing the history of the Society, which he divided into three characteristic epochs. In its early days, from 1828 to 1859, it was concerned chiefly with the diffusion of knowledge of geographical work done elsewhere, and discussion of the results obtained. The year 1859 was marked by the opening of a period of great exploring activity on the part of the members of the Society—a feature that especially characterised its work during the second period. The third period, while continuing explorations on a large scale, as, for example, in the Antarctic, has been marked by more intensive geographic research, in the form of the detailed examination of smaller areas, and investigation of special problems. In this period, also, there has been continuous improvement in the value of the Society's publications, and eight volumes of the "Bibliotheca Geographica," which is regarded as a model of bibliographical enterprise, have been published. A new feature, which will still further contribute to the usefulness of the Society in the future, is the foundation of the "Ferdinand von Richthofen Stiftung," in honor of the great geographer. The sum of 26,000 marks, which the committee had collected, was handed over to Baron von Richthofen as a fund for the encouragement of geographical progress, the yearly proceeds to be devoted to the support of journeys, of geographical research, grants to geographical students, and other similar purposes.

ASIA.

RAINFALL OF INDIA.—India is one of the most interesting countries in the world from a climatic standpoint, especially as regards its rainfall. Cherra Punji, in the Khasi Hills, north of the head of the Bay of Bengal, has long been celebrated because of its having the heaviest rainfall in the world, 457.80 inches, according to the latest data available. Furthermore, the year in India is divided into three seasons—the cold, the hot, and the wet—with the general rains during the summer monsoon, the dry season during the winter monsoon, and finally the storms of the winter rains in northern India, which give winter weather types not very unlike many of those in the United States. The late H. F. Blanford, in Appendix A of a memoir on the Rainfall of India (*Indian Meteorological Memoirs*, Vol. III), gave the monthly rainfalls for 457 Indian stations for various periods ending with December, 1886. In the latest publication of the Indian meteorological service (*Indian Meteorological Memoirs*, Vol. XIV. I. The Rainfall of India. 1902. Fol. Pp. x+709), Sir John Eliot has reprinted these data, and has brought them down to date by the inclusion of similar data for the fourteen years 1887 to 1900. The latitudes, longitudes, and altitudes of the stations have been corrected, and two columns have been added, headed "Total N. E. Monsoon, December to April," and "Total S. W. Monsoon, May to November." These two periods cover roughly the two rainfall periods of the year—*i. e.*, the cold weather or winter rainfall, and the southwest monsoon rainfall period. In the Introduction reference is made to the very natural objection which is likely to be urged against the use of the term "N.E. Monsoon," which really applies only to the rush of vapour-laden northeast winds along the eastern coast of India during October to December. But popular usage has so firmly established this nomenclature that its retention is justifiable. The term "S.W. Monsoon" has always been a legitimate one, as these winds prevail more or less generally over the whole country from June to September, and in southern and coast districts during October and November also. The present publication, embracing over 700 pages, gives the latest and most authentic data regarding Indian rainfall, and will, therefore, for some years to come, be the source of information on this subject. The series of *Indian Meteorological Memoirs*, which has already contained very many important contributions to meteorological science, shows no signs of diminishing in value as time goes on.

R. DeC. W.

THE PHILIPPINE WEATHER SERVICE.—Part II of the *Report of the Director of the Philippine Weather Bureau, 1902*, concerns "The Meteorological Service of the Philippine Islands," and was prepared by Father Marcial Solá, S. J., Secretary of the Philippine Weather Bureau. The Report is published under the seal of the Department of the Interior, at the Bureau of Public Printing, Manila (4to. Pp. 68. Figs. 12. Pls. VIII). Meteorologists have long known of the excellent work done by the Jesuit priests at the Manila Observatory, especially in connection with the study of typhoons; but the American public knows little of this institution, which has now become the central station of the Philippine Weather Service, and is carrying on that service by authority of the United States Government.

The Manila Observatory began its work in 1865, at the college known as the Ateneo, under the direction of the Jesuit Fathers, and with a few of the most indispensable instruments. Monthly and annual leaflets were issued from the start, giving the results of the observations. Father Federico Faura, S. J., was the first director, and under his enthusiastic leadership the instrumental equipment was soon increased, and in 1870 the publication of a monthly Bulletin was begun. On July 7, 1879, the first typhoon prediction was issued, and was fully verified by the storm which followed. In 1880, after Manila had been connected with Hong Kong by cable, typhoon warnings began to be sent to the latter station, at the request of the Governor of the colony. In 1884, as the result of representations made by prominent persons, official and otherwise, in Manila, a Royal Decree was issued, officially establishing a meteorological service in the island of Luzon, with secondary stations reporting to the central station at Manila, the director and sub-director (Jesuit Fathers) of the central observatory being paid for their services, and an additional appropriation being made for other expenses. The secondary stations were established and equipped as soon as possible, earthquake records being kept at all these places. The central station having outgrown its old quarters, a new building was erected and was occupied in July, 1886. This building is in the suburb of Manila known as Ermita, on slightly-elevated ground, near the sea, with an unobstructed horizon. The magnetical department, in its own building, was inaugurated in 1888, and the astronomical department, which also has its own building, was completely equipped in 1898.

During the war with Spain the work at the central observatory at Manila suffered no interruption. After the war, as the result of conferences between the members of the Philippine Commissions, the Secretary of Agriculture, the Chief of the Weather Bureau, and the Jesuit Fathers, the Philippine meteorological service was finally established in May, 1901, with Father Josè Algué, S. J., as director, the director being subject to the Colonial Government in the Philippines in the same way as the Chief of the United States Weather Bureau is to the Secretary of Agriculture. The officers of the Philippine Weather Bureau are a director (salary $2,500); three assistant directors (salary, $1,800); and one corresponding secretary and librarian (salary, $1,400). There is also a corps of paid observers. After the war the secondary stations provided for in the new act establishing the Philippine Weather Bureau were organized as rapidly as possible. At the present time there are in operation: 1 central observatory; 9 first, 25 second and 17 third-class stations and 21 rainfall stations. A crop service, similar to that in the United States, was begun in August, 1901.

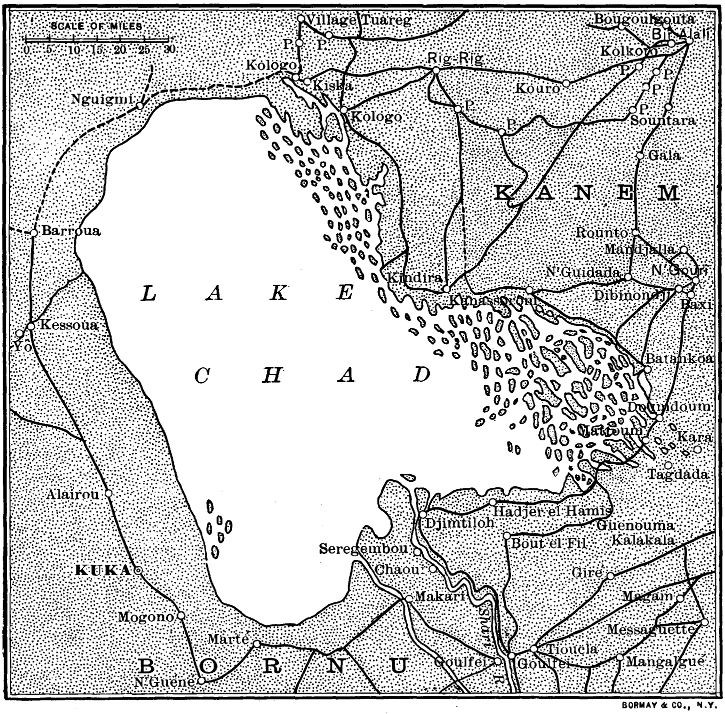
The report contains half-tone pictures of the Manila Observatory, and of various meteorological instruments. Plate VII, "The Special Pavilion for Tropical Regions," is of particular interest. There are also some views of different meteorological stations, shelters, etc., and a map showing the locations of the secondary stations. A list of the publications of the Manila Observatory, 1865–1902, occupies two pages. Among the recent publications the most important are, perhaps, "Baguios o Ciclónes Filipinos" (1897); Las Nubes en el Archipiélago Filipino (1899); "Climatología de Filipinas" (1900); and "The Climate of Baguio" (1902). Two valuable instruments have been invented by the Fathers at Manila—one the aneroid barometer of Father Faura, and the other the barocyclonometer of Father Algué. R. DE C. W.

THE LATE DR. ZIEGLER'S SCIENTIFIC OBSERVATIONS.—The "Physikalischer Verein zu Frankfurt am Main" could pay no higher tribute to the memory of the late Dr. Julius Ziegler than to devote, as it has done, a large part of its *Jahresbericht* for 1901–1902 to the publication of the results of his meteorological and hydrographic observations in the neighbourhood of that city, extending over a period of thirty-six years until within a few weeks of his death on Sept. 15, 1902.

AFRICA.

STANDARD TIME IN SOUTH AFRICA.—The Governments of Cape Colony, Natal, Transvaal, Orange River Colony, Rhodesia, and Portuguese East Africa, having decided to adopt a standard time for railroads, telegraphs, and other public purposes, have agreed that the time shall be that of the meridian 30° E. Long.—that is to say, two hours in advance of Greenwich time. The arrangement took effect from March 1 last.

LAKE CHAD.—*La Géographie* published in its number for June a map, "Iles du Tchad et Côte du Kanem," on a scale of 1:500.000, or 7.8 statute miles to an inch. The scale is sufficiently large to show all the numerous islands recently discovered along the whole extent of the east side of the lake. The map is the combined result of surveys of eleven officers of the French military force in that region under the direction of Lieut.-Col. Destenave; and the map was prepared by Captain Bézu. Colours serve to differentiate the islands into low, wooded, and tilled islands and sandbanks. The geographic co-ordinates were determined for five places among the islands and for Djimtiloh, on the Shari River. A summary description of the islands, based upon the surveys above mentioned, was printed in the BULLETIN, 1903, No. 2, p. 187. The map contains an inset map of Lake Chad showing the important changes which the surveys have made in the outline of the great lake and also giving an excellent idea of the distribution of the islands discovered and surveyed. The map here given is based upon the inset map published by *La Géographie.*



BORMAY & CO., N.Y.

LAKE CHAD.

The islands which fringe the east coast are due to the currents and prevailing winds, which have carried and distributed enormous quantities of sand. They extend with great regularity from northwest to southeast. The mainland does not touch the open water throughout the whole eastern side of the lake. The width of the zone of islands varies from about 5 to nearly 20 miles. The channels between the islands rarely exceed 2 miles in width, and in many places are much narrower. Many of the islands are merely sandbanks, while others are occupied by forests or plantations. The actual shore of the lake is largely cut up into peninsulas, which reproduce the trend of the islands.

THE SURVEY OF VICTORIA NYANZA.—Commander Whitehouse, who, some time ago, completed an admirable survey of the shores of the Victoria Nyanza within the British sphere, north of 1° N. Lat., is now engaged under an agreement with the German authorities in a survey of the southern half of the lake, particularly in the interests of steam navigation. The steamer *Winifred*, recently placed on the lake, has circumnavigated it, and it is intended to establish a regular service between ports on all its shores. When this enterprise is carried out it is expected that the quickest route to Lake Tanganyika will be by the Uganda railroad and the Victoria lake. It is probable that Commander Whitehouse's survey of the lake will make important changes in the outline of its southern shores.

FAILURE OF THE MACMILLAN EXPEDITION.—The well-equipped expedition under Mr. W. N. Macmillan of St. Louis, which went to Abyssinia to descend the Blue Nile from Lake Tsana to the plains of the Sudan, was wrecked in the rapids of the river, on the Abyssinian highlands, soon after it started, on June 26, on the river journey. Two of the iron punts that carried the party were lost in the rapids. The occupants swam ashore, but, unfortunately, the lost punts contained the larger part of the stores, and further loss was suffered from a hurricane during the enforced detention of the expedition on the river banks. The party was compelled to return to Addis Abeba, and the journey has been abandoned for the present.

ANTARCTIC.

THE GERMAN ANTARCTIC EXPEDITION.—The German expedition on the steamer *Gauss* has returned home. The *Gauss* sailed from Kiel on Aug. 11, 1901, and arrived at Kerguelen Island, its Antarctic base, on Jan. 2, 1902. Dr. J. Enzensperger had preceded the *Gauss* on the supply steamer *Tanglin*, which carried all the material for the buildings to be erected on Kerguelen and the larger part of the supplies which the *Gauss* was to take south. On Jan. 31, last year, Dr. von Drygalski and his comrades on the *Gauss* left Kerguelen Island for their journey into the unknown Antarctic. Dr. von Drygalski's official report was published on July 10 as a supplement to the *Reichsanzeiger.* Pack ice was reached on Feb. 13 in 61° 58′ S., 95° 8′ E. The *Gauss* sailed directly over the spot where Wilkes supposed that he saw the land which he designated "Termination Land." Wilkes was 60 miles from the place, and Dr. von Drygalski believes that the American sailor's mistake was due to the deceptive appearance of the icebergs. Seven days later, Feb. 21, 1902, the Germans discovered land. They were in front of a coast covered with heavy ice, evidently the edge of an ice-sheet extending over a land-mass. On one side was a bare volcanic peak rising to a height of 1,200 feet above the sea. The new coast was named Kaiser Wilhelm II. Coast and the little mountain was called Gaussberg. The next day the ship became frozen in the ice in a large bay on this coast, which was named Posadowski Bay. The party were imprisoned here for nearly a year till Feb. 8, 1903, their position being latitude 66° 30′ S., longitude 90° E. The extent of the land-mass was not discovered. Four sledge journeys, however, were made to the coast. The Gaussberg was ascended and found to be the only part of the land in sight not covered by ice. Photographs were taken, the geology of the mountain was studied, and an ice hut was built at its foot, and zoological, botanical, and geological specimens were collected. Better views of the surroundings were obtained in clear weather by balloon ascent to a height of 1,600 feet. The Gaussberg was the most conspicuous object. The edge of the coast could be traced far away to the east and west, and the undulating ice-covered surface stretched away to the south.

The party dredged the sea for marine life and regularly took magnetic, meteorological, and other scientific observations. When the results are worked out it will doubtless be seen that this expedition has added largely to the scientific knowledge of the Antarctic. During the winter months (from the end of April to the end of August) one snowstorm followed closely on another, especially in May and August, burying the ship, so that after each storm it had to be dug out of the snow. The rounds of the meteorological and other observers to obtain the instrumental records were exceedingly toilsome. The party saw two species of penguin, the small Adelia and the Emperor penguin, which were very useful for food, especially for the dogs. Seals were easily caught on the ice. The auxiliary party left on Kerguelen Island were most unfortunate. Dr. Enzensperger, the meteorologist in charge of the station, and several of his comrades, perished of beri beri. The station was abandoned in March last and the survivors arrived in Sydney on April 16.

THE NORDENSKIÖLD ANTARCTIC EXPEDITION.—The steamer *Antarctic*, having on board the expedition commanded by Dr. Otto Nordenskiöld, left Sweden in October, 1901, and went to Staten Island, Tierra del Fuego, where the Argentine Government had established a magnetic observatory for co-operation with the Antarctic expeditions. The party left Staten Island on Jan. 6, 1902, for Graham Land. Entering the channel, first shown by D'Urville, on the west side of Louis Philippe Land, they made an interesting discovery. Louis Philippe Land has been supposed to be an island, and is so represented on the maps; but it proved to be only the extremity of the land-mass known as Graham Land. On Feb. 12, 1902, Dr. Nordenskiöld reached Admiralty Inlet, on the coast of Graham Land, and began to prepare his winter quarters. He expected during the following fall and spring months to make sledge journeys over the land and extend knowledge of that region farther south. The *Antarctic*, leaving him and his five companions at their winter quarters, returned to South America with the news above outlined. In November last, about the beginning of the Antarctic summer, the vessel sailed south again, and it was the distinct plan that she should return with the entire expedition in February last. She did not return according to the programme, and, therefore, steps are being taken to send out a relief expedition.

RELIEF EXPEDITION TO VICTORIA LAND.—The British Admiralty is bearing the entire cost of sending a relief expedition to the Antarctic ship *Discovery* at Victoria Land. The supply ship *Morning*, which last season visited the *Discovery* in the neighbourhood of Mounts Erebus and Terror, will sail from Hobart this year instead of from Lyttelton, New Zealand, as before. All letters and parcels for the *Discovery* should reach the *Morning* at Hobart before December 1 next. The sealing vessel, the *Terra Nova*, purchased in Newfoundland, has been fitted for the voyage, loaded with stores, and will accompany the *Morning* as an additional precaution against possible mishap. If it is found impossible to extricate the *Discovery* from the ice in which she was frozen last year in time to return early in 1904, the entire party on that vessel will be brought home on one or other of the relief ships.

ECONOMIC GEOGRAPHY.

THE BREMEN STATISTICAL OFFICE.—Bremen maintains a statistical office, one of whose publications, the *Jahrbuch für Bremische Statistik*, is wholly devoted to the commercial interests of the port. That this phase of Bremen's activity is most thoroughly analyzed and reported may be inferred from the fact that the *Jahrbuch* for 1902 contains 327 large and closely-printed pages. Among these statistics are the number of vessels entering or leaving the port and its outports, with net tonnage, and value of cargo and the countries to which they are destined or from which they come, the quantity and value of each article imported or exported, whence derived and its destination, and the countries which have a share in the commerce of Bremen, with the quantity and value of every article imported from or exported to them. The index makes it easy to ascertain the total import or export trade in every article, and the share in the trade of each country. Thus the four and one-half pages given to the import trade from the United States show that 223 different commodities were brought into Bremen. The value of Bremen's imports from the United States in 1902 was 394,845,738 marks; exports to the United States, 92,581,446 marks. The *Jahrbuch* is a model for works of its kind.

FOREIGN TRADE OF CHINA IN 1902.—The official *Report on the Trade of China for 1902* (Imperial Maritime Customs, Shanghai, 1903) gives the imports at 315,363,905 haikwan taels (a haikwan tael was worth 63 cents American gold in 1902), and exports, 214,181,564 haikwan taels. Since 1890 the imports have increased every year, excepting in 1900, and the exports have shown steady increase, except in 1896, 1898 and 1900. The imports have much more than doubled since 1890, and the exports have nearly trebled. Hong Kong, Great Britain, Japan, the United States, India, and Russia figured most largely in the trade in this order.

CUSTOMS DISTRICTS AND LIGHTHOUSES IN CHINA.—The Inspector General of Customs at Shanghai has just published the revised list of the lighthouses, buoys, and beacons on the coasts and rivers of China, the pamphlet including 9 charts showing position and kind of lights and limits of Customs districts. In China proper there are 17 Customs districts and 9 lighthouses.

ARGENTINE WOOL.—France continues to be the largest consumer of Argentine wool. In the fiscal year 1901–02 Argentina exported 505,086 bales, of which 225,000 bales entered France through the ports of Dunkirk, Havre, and Marseilles. Germany received 127,000 bales through Hamburg and Bremen; Belgium 78,000 bales, and England 35,000 through Liverpool and London. The exports to North America were 34,000 bales.

ARGENTINE FOREIGN TRADE IN 1902.—The imports of Argentina in 1902 were valued at $103,039,256 in gold, a decrease of $10,920,493 as compared with 1901. The exports were $179,486,727 gold, an increase of $11,770,625 as compared with 1901. The leading imports in order of value were: textiles, $29,744,239; iron manufactures, $17,916,082; pottery, $10,908,694; provisions, $10,626,004; wood and wood manufactures, $6,856,776; beverages, $5,583,549. The purchases from Great Britain were worth $36,955,460; Germany, $13,229,275; United States, $13,303,504; Italy, $12,265,003; France, $9,243,071; Belgium, $5,484,233; Brazil, $4,583,645. The largest buyers of the meat, grain, hides, and other products of Argentina were: Great Britain, $35,084,066; France, $29,587,457; Germany, $22,939,881; Belgium, $13,760,219; United States, $10,037,576, and Brazil, $8,368,742. (*Revista Financiera y Comercial*, Buenos Aires, Feb. 6, 1903.)

RAISING CROPS IN THE FAR NORTH.—Mr. N. L. Skalosubof, addressing the recent agricultural convention at St. Petersburg, said that many facts may be given to disprove the popular idea that grain will not ripen north of 60° N. Lat. A clergyman at Yugansk, Siberia, 61° N. Lat. and 73° 40′ E. Long., is building a mill propelled by wind-power to turn his winter rye and spring wheat into flour. At Masau, on the Pelym River, in 61° N. Lat., a farmer has extended his area under tillage, so that he now raises all the grain required by his large family, and has a surplus to sell. The efforts to raise rye at Beresof in 63° 54′ have been very successful. Still farther north, in 64° 13′, barley, rye, and oats have been grown for a series of years, and yield fifteenfold. Vegetables are raised at the most northern line of Russian settlements—for example, at Obdorsk in 66° 31′, where the successful experiment was first made in 1894.

GENERAL.

GEOGRAPHEN-KALENDER.—Justus Perthes has begun the publication, at Gotha, of an annual "Geographen-Kalender," a reference book of about 450 pages, which promises to be very useful to all geographic workers. Its timeliness and usefulness may be seen from the following enumeration of the more important departments: Geographical tables, such as those for finding the value of map scales, or for expressing thermometrical records in terms either of Fahrenheit, Celsius, or Réaumur; an enumeration of the chief geographic events, the results of exploration, the geographic literature, and geographic education in 1902; a list of geographers who died in 1902; the latest statistical information from all lands, and, finally, an address book containing the names, geographic specialties, and addresses of about 5,000 workers in this field. The volume ends with sixteen handsome little maps, illustrating, cartographically, the most important geographic events of 1902. Dr. Herman Haack is the editor, his assistants being Dr. Wilhelm Blankenburg, Professor Paul Langhans, Professor Paul Lehmann, and Hugo Wichmann. Next year's edition is to contain a list of geographic societies and publications.

BIBLIOTHECA GEOGRAPHICA.—Vol. VIII of *Bibliotheca Geographica*, published by the Berlin Geographical Society, and compiled by Mr. Otto Baschin, is a practically complete index to the geographic literature and cartographic products of 1899. It contains 511 pages, the volume for 1897 having 444, and that for 1898 478 pages. The regular growth in size of the annual volumes of this most helpful bibliography indicates both enlargement of the quantity of geographic material and the increased thoroughness with which Mr. Baschin, year after year, has covered this prolific field. No necessity has arisen for changing in any volume the excellent classification adopted for the first of the series. Perhaps the only noteworthy improvement in Vol. VIII is the greater completeness with which the Russian titles are treated. As in Vol. VII, thirteen pages are devoted, in the section on Special Geography, to the United States. The classification and the indices of subjects and authors make it easy to find the references to every branch of geographic products. The Berlin Geographical Society and Mr. Baschin undoubtedly have the thanks of all geographic workers for this very useful reference book.

SPHERICAL MAPS AND RELIEFS.—In a paper read before the Royal Geographical Society on April 2 last, Professor Elisée Reclus deprecated the use of maps on different scales, because it is quite impossible to compare them. The maps of Java, for example, are always small and the maps of The Netherlands are large, which causes confusion in one's mind. In all well-conducted schools globes should be used and children should be forbidden to use maps. To show a globe of huge dimensions is impracticable; but we may at least show slices of the superficial part of the earth, and the effect is the same. If, for example, we should wish to make a globe in a proportion of 1:5,000,000, it would be eight metres in circumference—too large for an ordinary room. But if we cannot have the whole globe, we may have slices of it, and then see places as they are. It would take nearly 150 slices to complete the whole globe; but 50 would represent all the continents, while the remaining 100, representing the water, would be less useful. As these slices of the globe would be only in the proportion of 1:5,000,000, it would be impossible to show relief otherwise than by colours or shades. True relief begins to be visible by slight asperities only when the proportion is from 1:1,000,000.

With regard to relief maps, the speaker said that in a reproduction of Mont Blanc in relief with the proportion of 1:100,000, the mountains would be about four centimetres above the plains. The heights would not be increased more than the breadth and the length of the country, but would exactly conform to the truth. It is wrong for makers of relief maps to show a relief which is not true in proportion. It is absolutely necessary to have an idea of geological shape. It is, therefore, essential to know the slope; but if we heighten the slope, it is impossible to imagine the reality. We get a false idea of the true shape of the country represented. If we wish to show the truth, we must give the proportions exactly as they are in nature. M. Reclus exhibited a model of one of the most precipitous parts of Belgium. This had been stamped out of copper by Mr. Patterson, an Englishman living in Belgium. Every point, M. Reclus said, was in its true position; the whole was true to nature, and such reliefs, he was sure, were a great improvement upon the reliefs ordinarily made, because less difficult to construct, cheaper, and more lasting. (Condensed from the *Geog. Jour.*, Sept., 1903.)

SYLLABUSES OF INSTRUCTION IN GEOGRAPHY.—The Council of the Royal Geographical Society received requests from the London School Board and the Oxford and Cambridge School Examinations Board to appoint a special committee to draw up syllabuses, as guides to instruction in geography in elementary and secondary schools. The committee requested Mr. T. G. Roper, the Government Inspector of Schools, and Mr. H. J. Mackinder, Reader in Geography at Oxford University, to draft two syllabuses—one for elementary and the other for higher schools. Owing to the death of Mr. Rooper, Mr. G. G. Chisholm completed the revision of the elementary syllabus. The syllabuses have now been issued by the Society, in a pamphlet of seventeen pages.

The elementary syllabus deals with the preliminary stage of instruction for children between five and eight years; the foundation for systematic study for children between eight and eleven years old; geographical observations, the use of globes and maps, and systematic study of various parts of the world for children from eleven to fourteen years old. The syllabus for higher schools gives outlines of work for a four-years' course.

Having been prepared by educators of large experience, and then thoroughly discussed and, in some respects, amended by the Committee, they undoubtedly contain many suggestions of value for teachers.

A NEW WORK ON BERMUDA.—The Connecticut Academy of Arts and Sciences has devoted its entire centennial volume (Vol. XI, Part II) to the work of its President, Professor Addison E. Verrill, of Yale, on the Bermuda Islands. The volume, which contains over 500 pages, especially emphasizes natural history, while treating also the scenery, climate, products, geology, people, and history of these beautiful islands. In text and illustrations the book is comprehensive and accurate, and is well adapted for a standard work of reference on the subject, and also to meet the needs of many visitors who are interested in the vegetation, the unusual forms of animal life, the grottoes, and many other aspects of the islands.

SHEETS OF THE UNITED STATES ATLAS.

BY

HENRY GANNETT.

During the past year the U. S. Geological Survey has issued eighty-six additional sheets of the great atlas of the country which it is preparing. These sheets are widely scattered over the United States, nearly half the States and Territories being represented upon them.

In the State of Maine are four sheets, all on the scale of 1:62,500, and with contour intervals of 20 feet. These sheets, known as the Orono, Castine, Bangor, and Bucksport, represent country bordering on Penobscot River near its mouth. They show a region of